MIDMARK®

Delivery Unit

Dental Instrument Delivery System User's Guide

CE 0088

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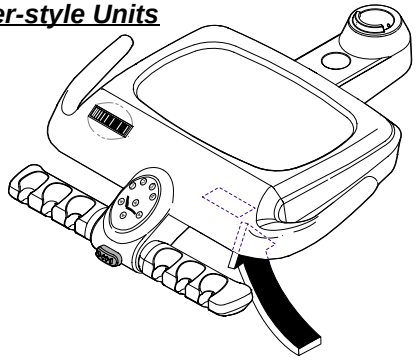
Intended Use

This delivery system is intended to provide dental professionals with air & water to operate dental handpieces, syringes, and Midmark authorized accessories during dental examinations and procedures.

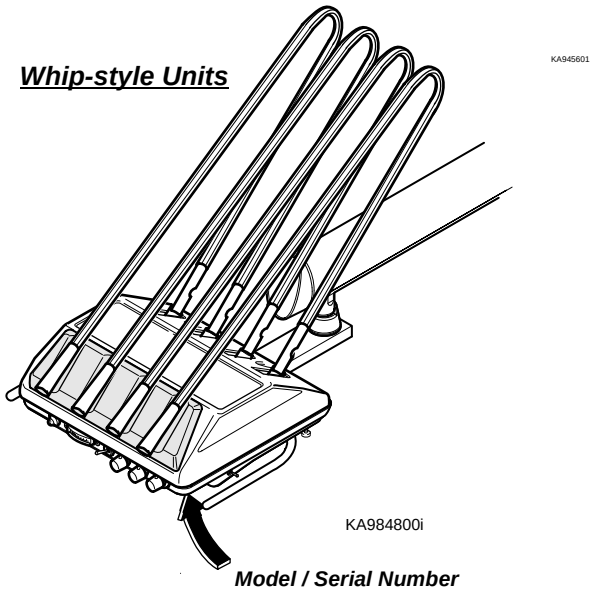
Model / Serial Number Location

ProCenter-style Units



Model / Serial Number

Whip-style Units



Model / Serial Number

Figure 1. Model / Serial Number Location

ATTENTION! Record model / serial number

Model : _____

Serial #: _____

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Part Number: 003-1261-00 Rev. E (4/02)

Features

Midmark delivery systems . . .

- use patented kink valve technology.
- allow the user to control air & water volume for up to six handpiece/syringe stations independently.
- have a pressure gauge to monitor and adjust handpiece turbine pressure.
- allow the user to shut off water and air to the unit ***at the source.***
- have a lockable delivery arm for stability and patient safety.
- allow easy articulation and positioning of delivery head with low friction points.
- are designed with durable materials and finishes to withstand most chemicals commonly used in the dental office.

Operation

Delivery System Power *(Figure 2)*

The delivery system is powered by air pressure, water pressure and low voltage electrical power for accessories.

To power up delivery unit, move **MASTER SWITCH** to ***ON*** position .

To power down delivery unit, move **MASTER SWITCH** to ***Standby (Off)*** position.

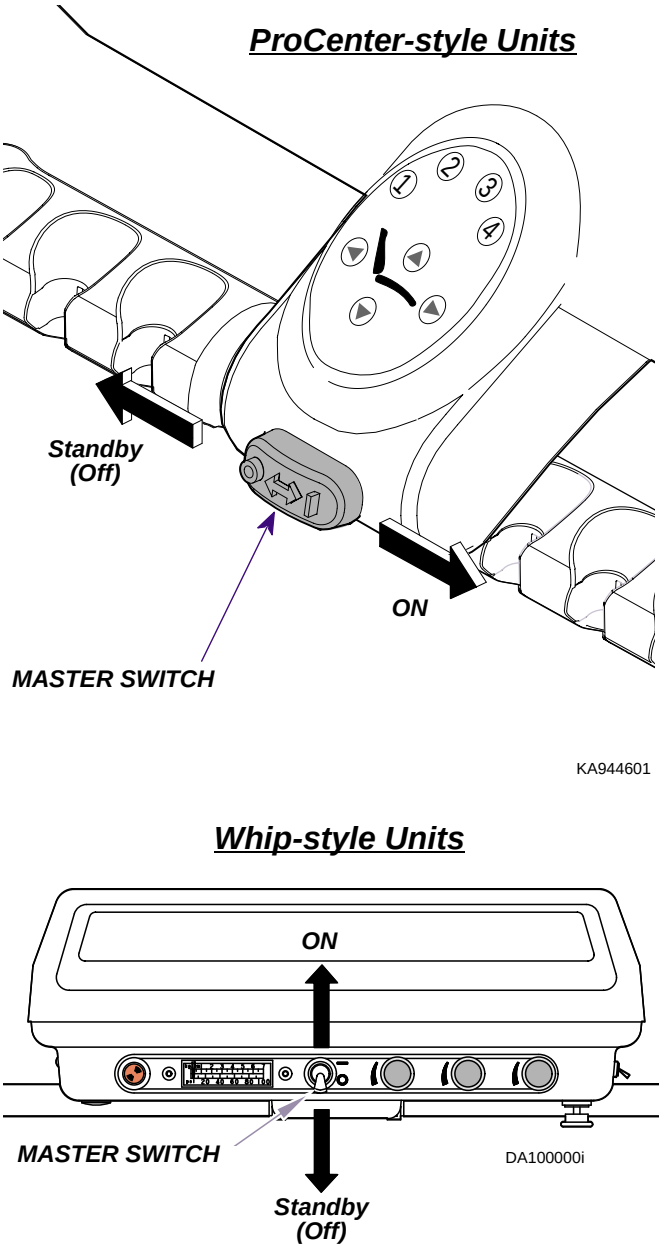

Figure 2. Master Switch Location / Operation

Unlocking / Locking Unit Flex Arm

(Figure 3)

To Unlock Unit Flex Arm:

1) ProCenter style units:
   Depress & hold **UNLOCK BUTTON** *[located on underside of both unit handles]*.

   Whip style units:
   Flip **ARM LOCK SWITCH** *[located on RH side of unit]* to ***Unlock*** position.

2) Raise unit arm slightly **(A)** to disengage lock, then lower to desired height **(B)**.

To Lock Unit Flex Arm:

> **NOTE**
> When locked, unit flex arm will still move upward.

1) ProCenter style units:
   Release **UNLOCK BUTTON** *[located on underside of both unit handles]*.

   Whip style units:
   Flip **ARM LOCK SWITCH** *[located on RH side of unit]* to ***Lock*** position.

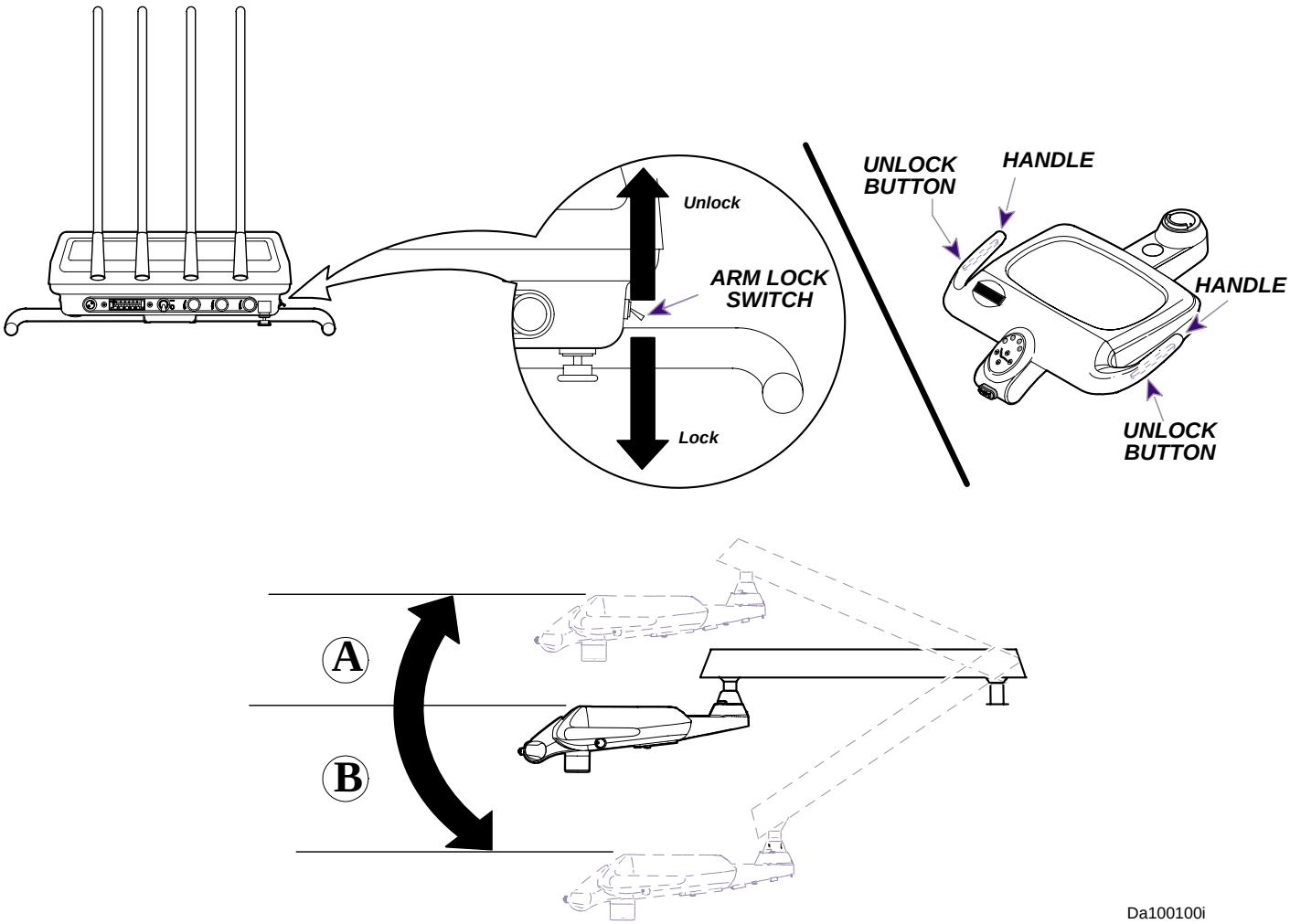

Figure 3. Unlocking / Locking Unit Flex Arm

Water Selector Switch Operation

(Figure 4)

The **WATER SELECTOR switch** allows the operator to use distilled water (from the self contained water system bottle) or city water in the delivery system.

Operation:

1) Move **WATER SELECTOR switch** to desired position (***City Water*** or ***Bottle***).

Switch Location:

Console mounted units *(shown)*
Front of console

L/R mounted units *(shown)* &
Wall/cabinet mtd. units *(not shown)*
Unit arm, under water bottle lid cover.
*[**City Water** / **Bottle** label is located under water bottle lid cover]*

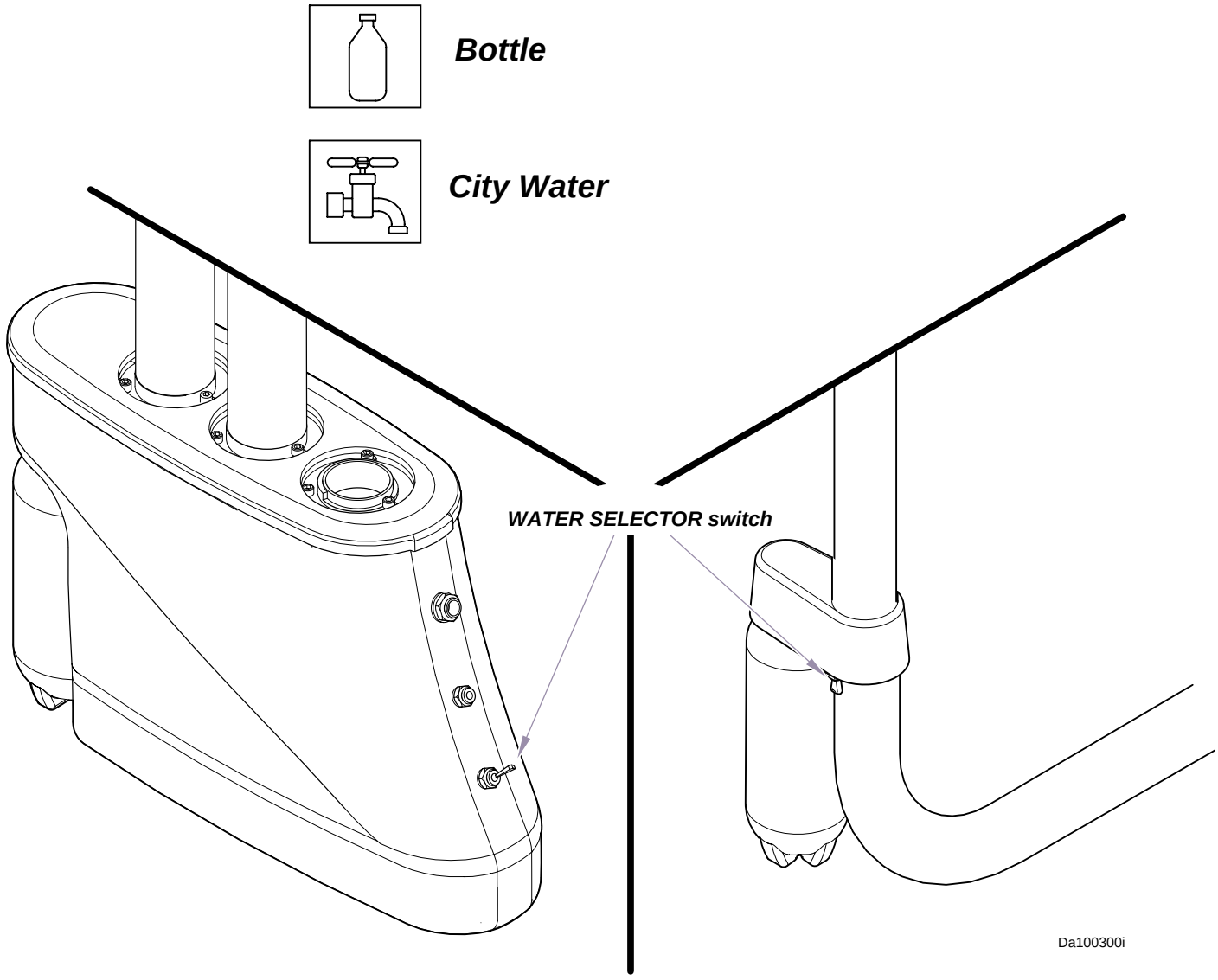

Figure 4. Water Selector Switch Location / Operation *(Console & L/R mounted units shown)*

Handpiece Operation (FIgure 5)

To operate a handpiece:

1) Move master switch to *ON* position. (Refer to ***Delivery System Power*** section).

2) Move water selector switch to *Bottle* position. (Refer to ***Water Selector Switch Operation*** section)

3) ProCenter-style units:
Remove handpiece from **INSTRUMENT HOLDER**.

   Whip-style units:
Pull handpiece forward.

4) Flip the **WET / DRY TOGGLE switch** on foot control to desired position.

5) Depress **FOOT CONTROL PEDAL** to deliver drive air to selected handpiece.

6) Refer to ***Handpiece Adjustments*** section if air and/or water pressure adjustments are necessary.

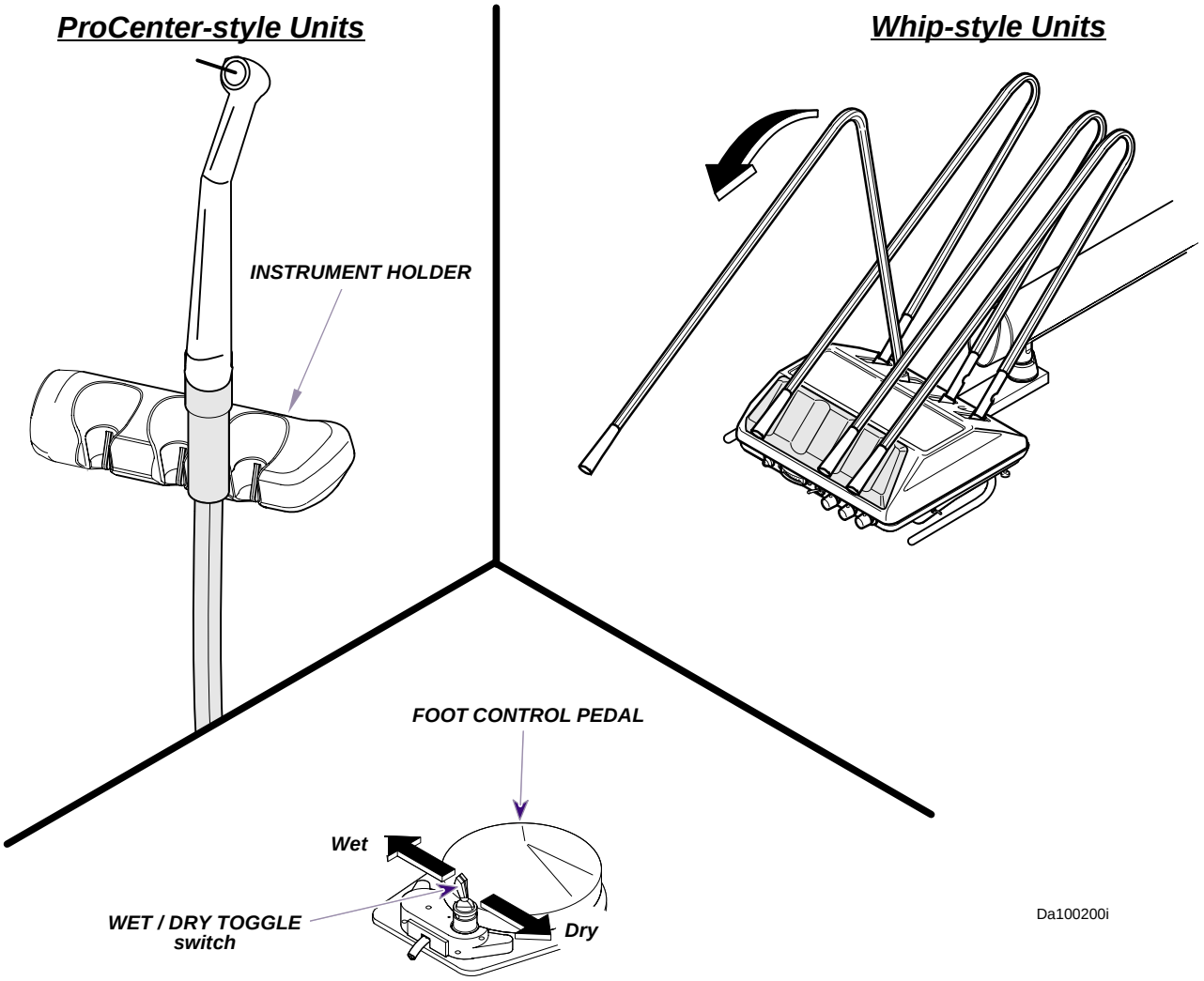

Figure 5. Handpiece Operation

Syringe Operation (Figure 6)

To operate standard 3-way air-water syringe:

1) Move master switch to *ON* position (Refer to ***Delivery System Power*** section).

2) Move water selector switch to *Bottle* position. (Refer to ***Water Selector Switch Operation*** section)

3) Press **WATER button** for water stream.
Press **AIR button** for air spray.
Press **AIR** & **Water buttons** for fine mist.

4) Refer to ***Syringe Adjustments*** section if air and/or water pressure adjustments are necessary.

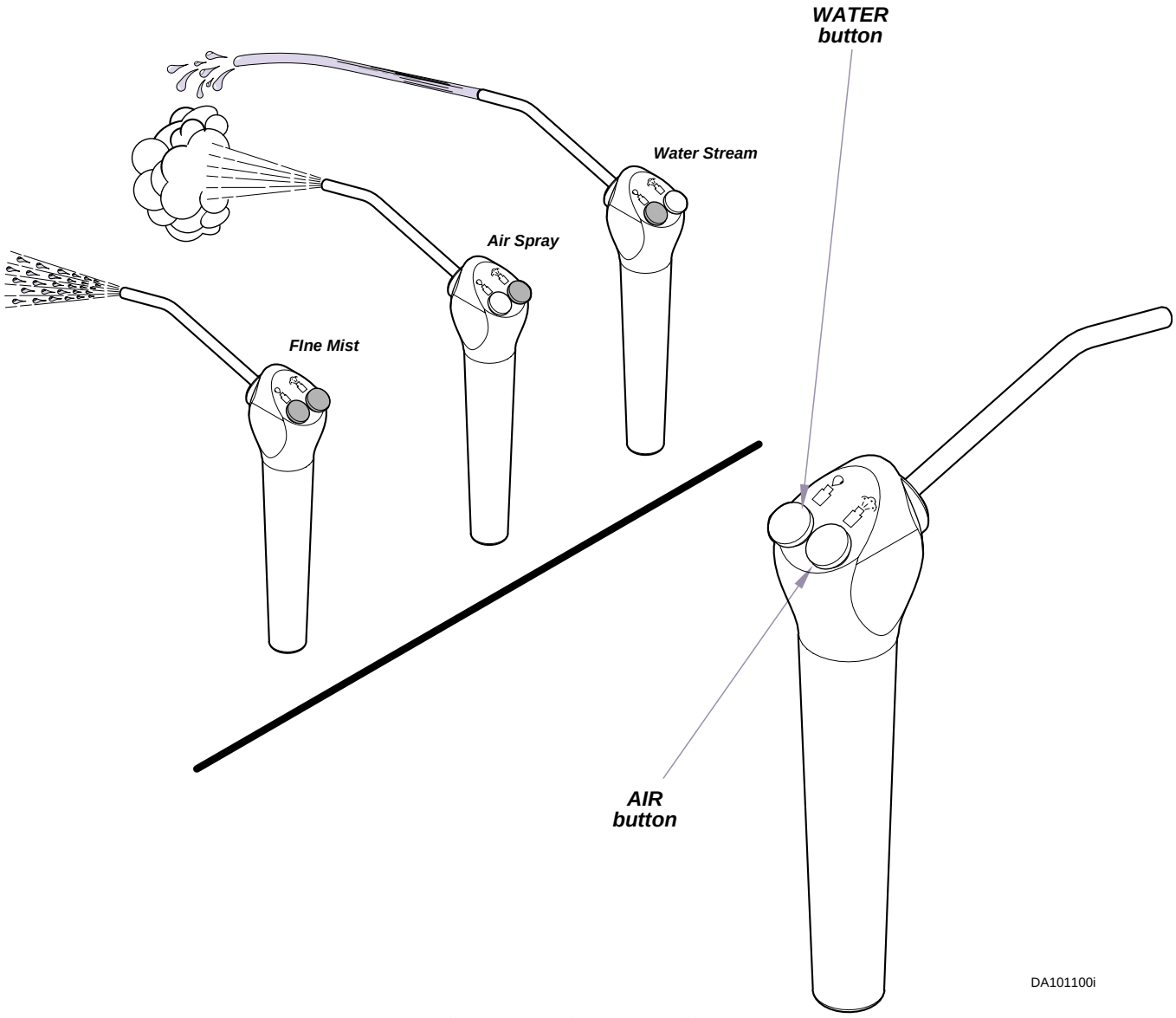

Figure 6. Syringe Operation

Adjustment Knob Location- ProCenter-style Units (Figure 7)

To optimize handpiece / syringe performance, the air and water pressures may be adjusted using the delivery unit adjustment knobs.

To access adjustment knobs, depress **PANEL UNLOCK button.**

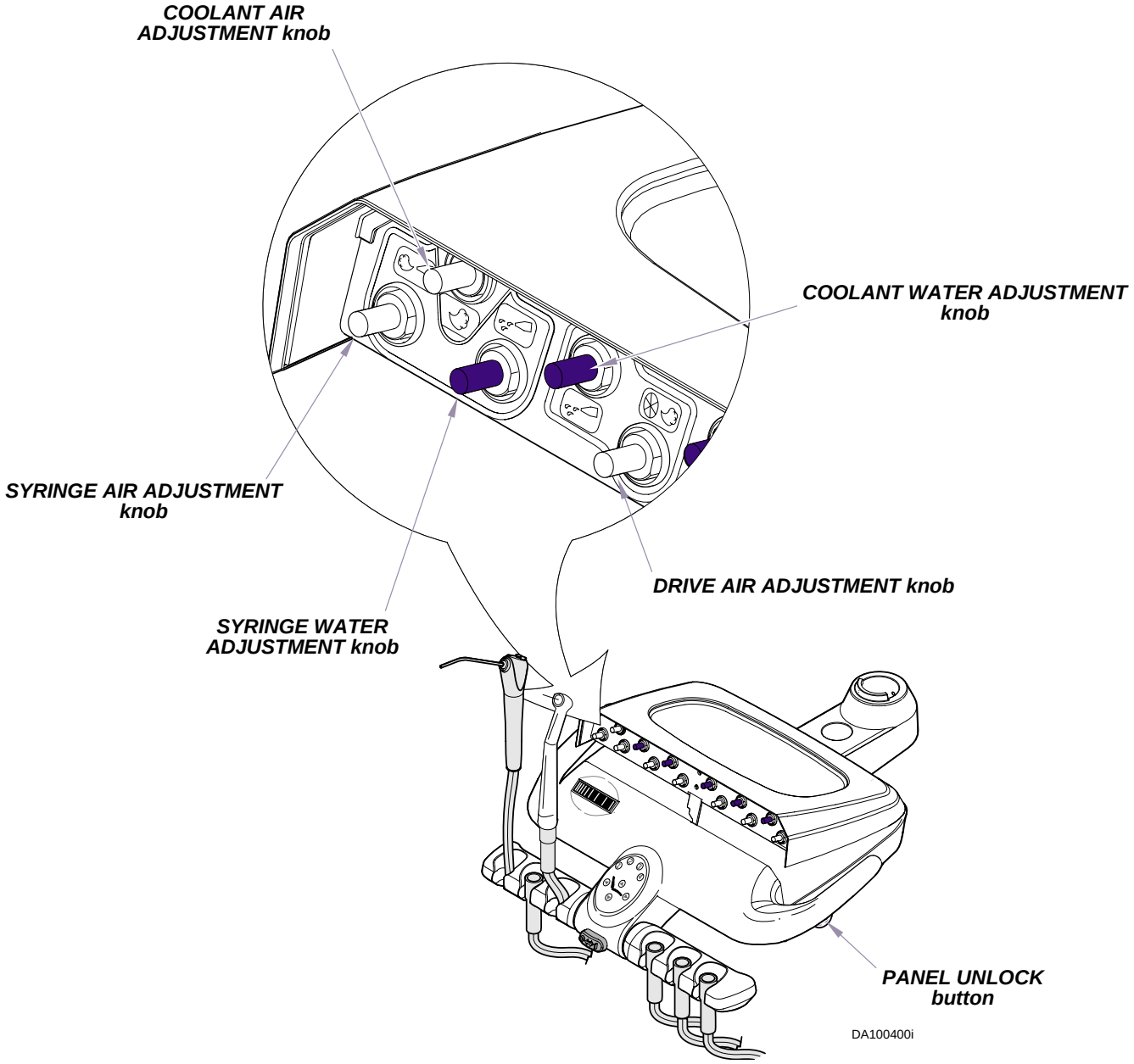

Figure 7. Adjustment Knob Location *(ProCenter-style Units)*

Adjustment Knob Location- Whip-style Units (Figure 8)

To optimize handpiece / syringe performance, the air and water pressures may be adjusted using the delivery unit adjustment knobs.

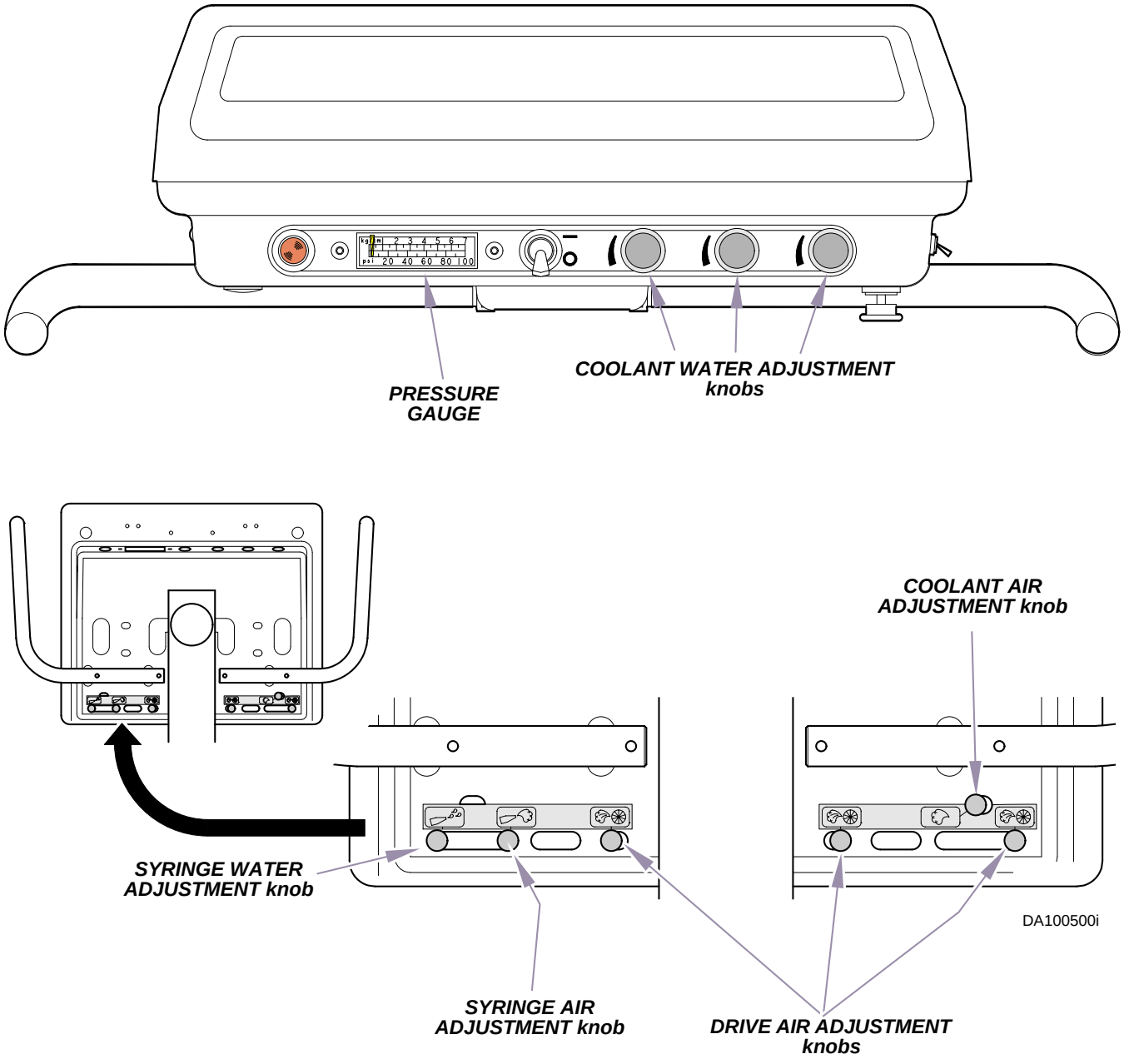

Figure 8. Adjustment Knob Location - *(Whip-style Units)*

Handpiece Adjustments

Perform the following adjustments as necessary to optimize handpiece performance. [Refer to ***Adjustment Knob Location*** (Figure 7 or 8) if necessary].

NOTE
There is a drive air adjustment knob and a coolant water adjustment knob for **each** handpiece station. The coolant air volume adjustment knob adjusts coolant air for **all** handpiece stations.

- ***Adjust drive air pressure*** by rotating the **DRIVE AIR ADJUSTMENT knob** until desired air pressure is displayed on pressure gauge (Refer to the handpiece manufacturer's specifications for recommended setting).
- ***Adjust coolant water volume*** by rotating **COOLANT WATER ADJUSTMENT knob** until desired flow of coolant water is achieved.

NOTE
The coolant air adjustment controls the spray pattern of air and water at handpiece. If handpiece you are using has an internal coolant air connection, this adjustment will have no effect and can be completely shut off.

- ***Adjust coolant air volume*** by rotating **COOLANT AIR ADJUSTMENT knob** until desired spray pattern is achieved.

Syringe Adjustments

Perform the following adjustments as necessary to optimize syringe performance. [Refer to ***Adjustment Knob Location*** (Figure 7 or 8) if necessary].

NOTE
Both of following adjustments affect spray pattern of syringe water. Adjustment of both air and water volume may be necessary to achieve desired water spray pattern.

- ***Adjust syringe air volume*** by rotating **SYRINGE AIR ADJUSTMENT knob** until desired volume of air ***and*** water spray pattern is achieved.
- ***Adjust syringe water volume*** by rotating **SYRINGE WATER ADJUSTMENT knob** until desired volume of water ***and*** water spray pattern is achieved.

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Refilling Self-Contained Water System Bottle (Figure 9)

CAUTION

Move master switch to standby position before removing water bottle. In addition, press the AIR button of the syringe until <u>all</u> residual air pressure is released. This ensures air pressure has been released from water bottle.

1) Move master switch to *Standby* position (Refer to ***Delivery System Power*** section).

2) Unscrew **WATER BOTTLE** from **MOUNTING CAP**. *(Cover / console not shown for clarity)*

3) Fill water bottle to neck with distilled water.

4) Ensure **GASKET** is in place in mounting cap; then screw water bottle into mounting cap.

5) Move master switch to *ON* position.

EQUIPMENT ALERT

Make sure water bottle is sealed properly against gasket in mounting cap and is not allowing any air pressure to escape. Failure to do so will result in low water pressure for syringes and handpieces.

6) Listen for escaping air pressure (hissing sound). If hissing sounds are heard, repeat steps 1 through 5 making sure gasket is in place and seated properly.

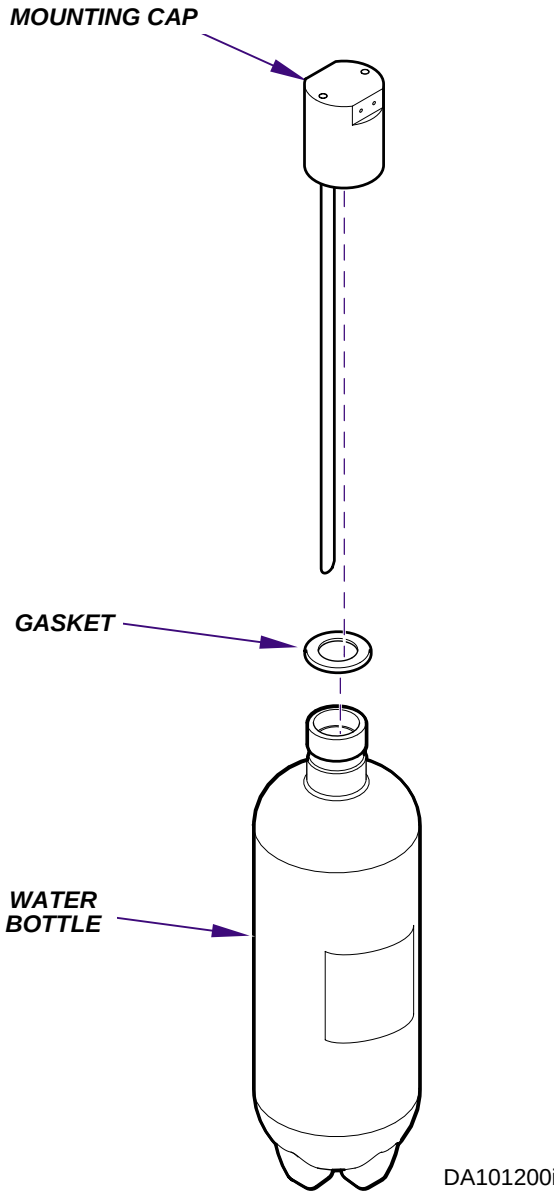

Figure 9. Refilling Self-Contained Water System Bottle

Operator Maintenance

Air / Oil Separator Cleaning (Figure 10)

Periodically check fluid level in oil bottle of air / oil separator system. When oil bottle is 2/3 full, perform following cleaning procedure:

1) Move **MASTER SWITCH** to ***Standby (Off)*** position.

2) Unscrew **OIL BOTTLE** from **MOUNTING CAP**.

3) Dispose of fluid and saturated **GAUZE SPONGE** in accordance with office procedures.

4) Disinfect oil bottle and mounting cap with a water based phenolic disinfectant.

5) Place a new gauze sponge in oil bottle; then screw oil bottle onto mounting cap (To obtain a new gauze sponge, refer to ***Replacement Parts*** section).

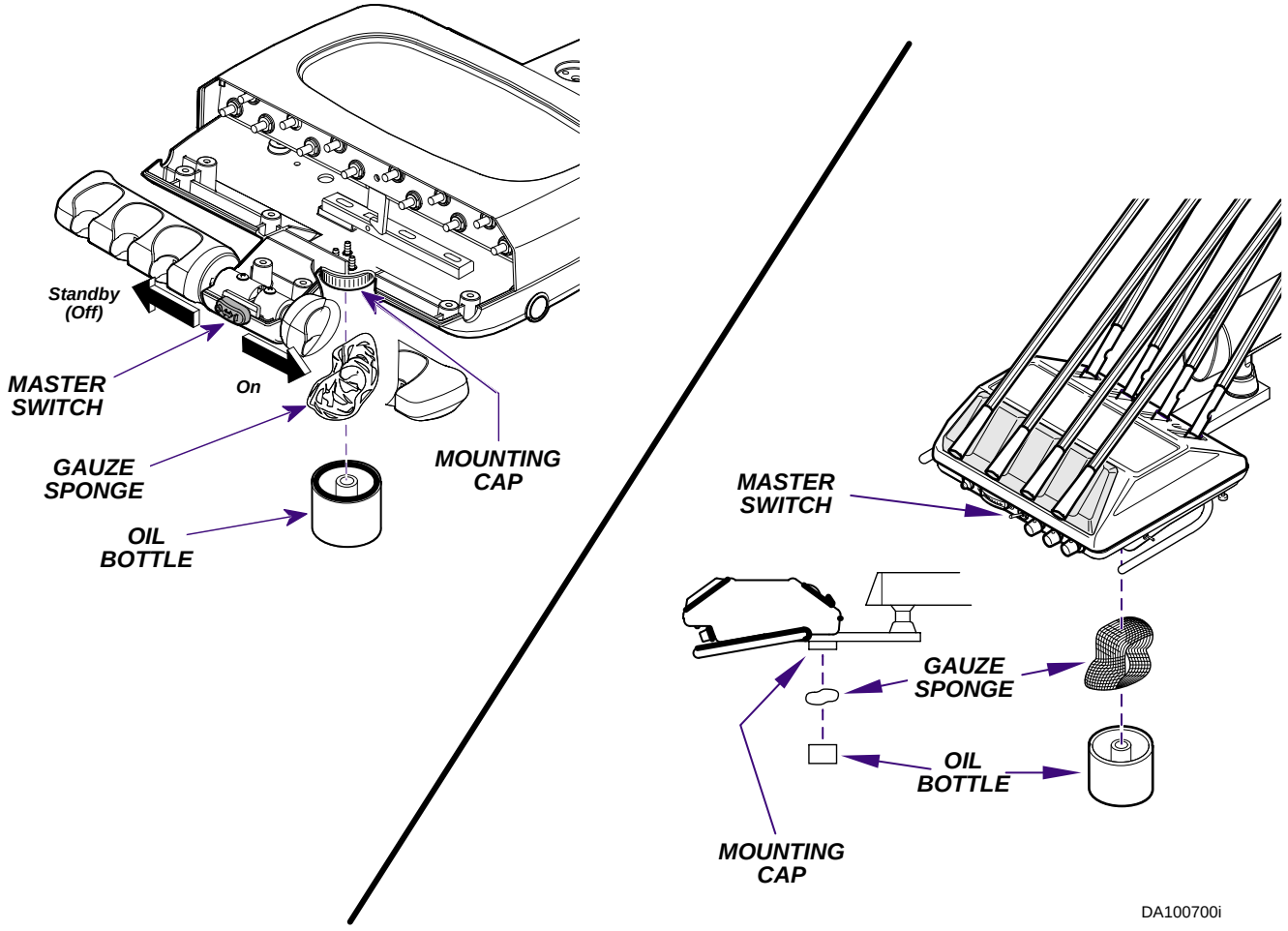

Figure 10. Air / Oil Separator Cleaning

External Infection Control / Cleaning

EQUIPMENT ALERT
Do not use phenolics, Glutaraldehyde, or Iodophor to clean the unit. These chemicals will eventually damage the plastic and painted components of the unit. Also, do not use "strong" or "full strength" solutions (must be less than 1%) of alcohol or bleach to clean the unit; these solutions will discolor plastic components over time.

Touch Surfaces (controls and handles) - Use barrier protection between patients. At end of clinical-day, wipe touch surfaces with a mild soap and water solution on a lint-free cloth; then disinfect using a Quaternary disinfectant.

General Plastic Surfaces - Wipe periodically using a mild soap and water solution on a lint-free cloth. Wring excess solution from lint-free cloth before wiping. Disinfect as necessary using a Quaternary disinfectant.

General Painted Surfaces - Wipe periodically with a mild soap and water solution on a lint-free cloth. Wring excess solution from lint-free cloth before wiping. Disinfect as necessary using a Quaternary disinfectant.

Delivery Head System Cleaning and Disinfectant Procedures

NOTE
Midmark assumes no responsibility or liability for any result, expressed or implied. This publication is an attempt to convey to the user a suggested procedure based on best information available at the time.

Beginning Of Workday

1) Install a clean water bottle filled with distilled water (Refer to ***Refilling Self-Contained Water System Bottle*** section).

2) Perform purging procedure (Refer to ***Purging Handpiece and Syringe Tubing*** section).

3) Install sterile handpieces.

4) Set up for next patient in accordance to office procedures.

Between Patients

1) Move master switch to ***Standby*** position (Refer to ***Delivery System Power*** section).

2) Remove handpieces and disposable tips, barriers, etc., in accordance with office procedures.

3) Perform surface cleaning and disinfection in accordance to office procedures (Refer to ***External Infection Control / Cleaning*** section).

4) Perform purging procedure (Refer to ***Purging Handpiece and Syringe Tubing*** section).

5) Install sterile handpieces.

6) Set up for next patient in accordance to office procedures.

End of Day

1) Move master switch to ***Standby*** position (Refer to ***Delivery System Power*** section).

2) Remove handpieces and disposable tips, barriers, etc., in accordance to office procedures.

EQUIPMENT ALERT
Mix fresh solution daily and do not use bleach with additives or bleach that is colored or scented. Also, do not use concentrations of bleach greater than recommended in following step. Failure to do so could result in permanent damage to unit.

3) Mix diluted bleach solution as follows: use 1 part household bleach (5.25%) and 9 parts water. ***See Figure 11***.

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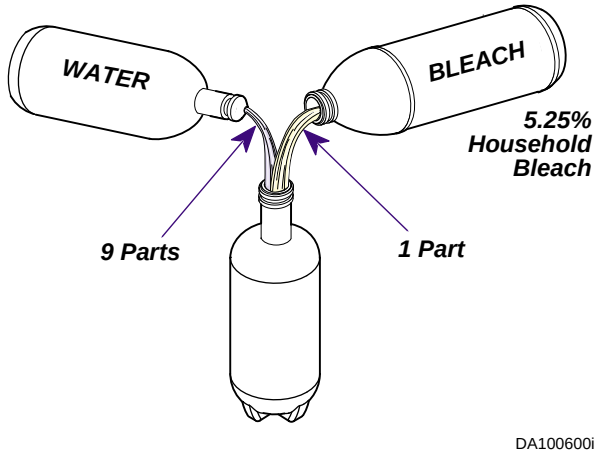

Figure 11. Diluted Bleach Solution

4) Install a clean water bottle filled with diluted bleach solution (Refer to ***Refilling Self-Contained Water System Bottle*** section).

5) Perform purging procedure (Refer to ***Purging Handpiece and Syringe Tubing*** section).

6) Let solution stand in the delivery unit system for 5 minutes.

7) Move master switch to ***Standby*** position

8) Remove water bottle containing solution. Install clean, ***empty*** water bottle.

9) Perform purging procedure a second time with empty bottle until all solution is expelled from delivery system tubing

10) Move master switch to ***Standby*** position.

11) Depress foot control pedal until all pressure is relieved from delivery system.

12) Perform surface cleaning and disinfection according to office procedures.

End of Week / Storing

1) Move master switch to ***Standby*** position (Refer to ***Delivery System Power*** section).

EQUIPMENT ALERT
Mix fresh solution daily and do not use bleach with additives or bleach that is colored or scented. Also, do not use concentrations of bleach greater than recommended in following step. Failure to do so could result in permanent damage to unit.

2) Mix diluted bleach solution as follows: use 1 part household bleach (5.25%) and 9 parts water. ***See Figure 11***.

3) Remove water bottle and empty remaining water from bottle. Rinse water bottle with diluted bleach solution.

4) Clean mounting cap and tubing using disposables saturated with diluted bleach solution.

5) Fill water bottle with diluted bleach solution and install water bottle (Refer to ***Refilling Self-Contained Water System Bottle*** section).

6) Perform purging procedure (Refer to ***Purging Handpiece and Syringe Tubing*** section).

EQUIPMENT ALERT
Do not let solution stand in system for less than 10 minutes or longer than 30 minutes. Leaving in less than 10 minutes reduces effectiveness of procedure while leaving in longer than 30 minutes can result in damage to delivery system tubing.

7) Let solution stand in the delivery unit system for approximately 15 minutes.

8) Move master switch to ***Standby*** position.

9) Remove water bottle and empty remaining diluted bleach solution from bottle. Reinstall ***empty*** water bottle.

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10) Perform purging procedure a second time without liquid until all bleach solution is expelled from delivery system tubing.

11) Move master switch to ***Standby*** position.

12) Remove water bottle and fill with distilled water. Install water bottle.

13) Perform purging procedure a third time until no bleach odor is evident in discharged water.

14) If storing delivery head for extended period of time, repeat step 10 of this procedure now to remove all water from delivery system tubing.

Purging Handpiece and Syringe Tubing

WARNING
It is recommended that this procedure be performed after each patient and at end of clinical day. Failure to purge handpiece and syringe tubing as recommended could result in shortened handpiece and/or syringe life, biofilm buildup, and unacceptable water quality levels inside delivery system tubing.

The following procedure removes all debris and matter that has worked its way into handpiece or syringe tubing. If this procedure is done on a frequent schedule, it will result in prolonged handpiece and syringe life, it will prevent biofilm buildup on handpieces and syringes, and will maintain acceptable water quality levels inside delivery system tubing. ***Midmark recommends that this procedure be performed after each patient and at end of clinical day.***

Coolant Water Flush Button Location: (Figure 12)

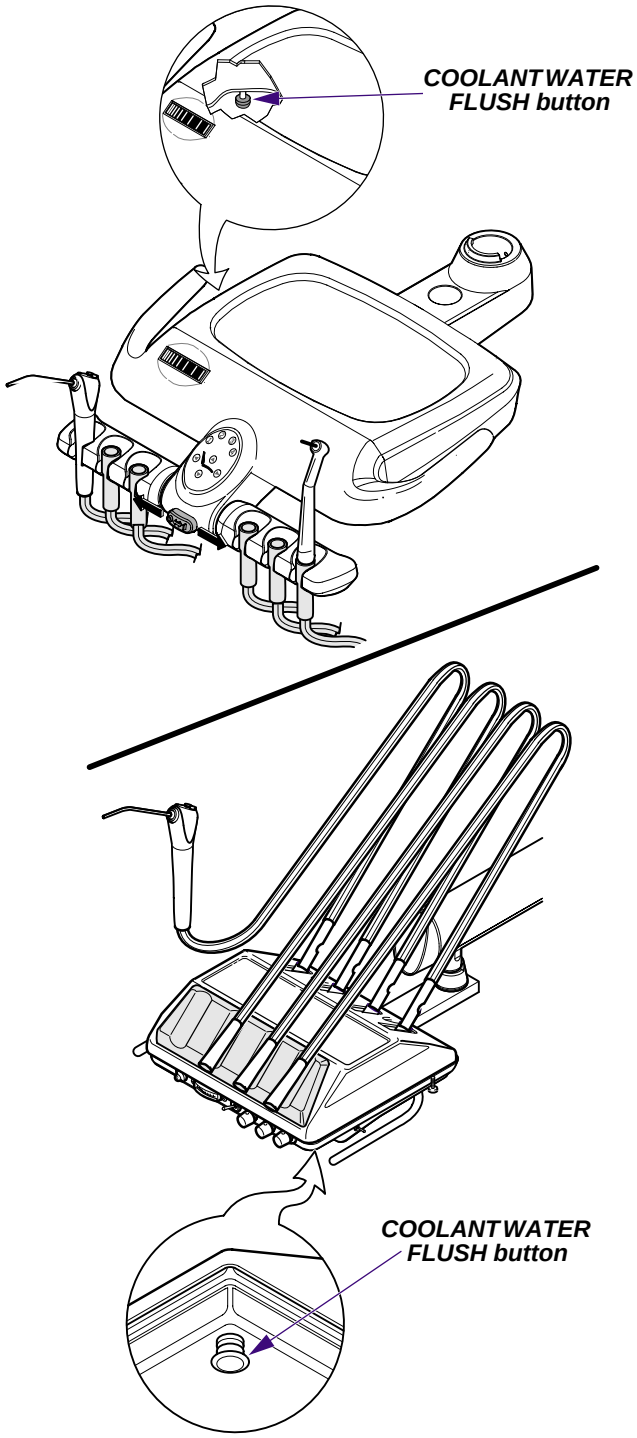


Figure 12. Coolant Water Flush Button Location

Purging Procedure (Figure 13):

1) Move master switch to *Standby* position (Refer to ***Delivery System Power*** section).

2) Move water selector switch to *Bottle* position. (Refer to ***Water Selector Switch Operation*** section).

3) Switch **WET / DRY TOGGLE switch** on foot control to **Wet** position.

4) If necessary, ***refill water bottle*** with water (Refer to ***Refilling Self-Contained Water System Bottle*** section).

5) <u>ProCenter-style units:</u>
Remove handpiece from instrument holder.

<u>Whip-style units:</u>
Pull handpiece forward.

6) Disconnect **HANDPIECE** from **TUBING**.

EQUIPMENT ALERT
Water will flow from tubing / syringe in the following steps. Hold tubing / syringe over a container or drain while performing steps 7 thru 10.

7) Depress **FOOT CONTROL PEDAL** for 30 seconds to flush coolant water and drive air lines.

8) Depress **COOLANT WATER FLUSH button** for 30 seconds. (*See **Figure 12** for location of button).* Allow the water to run in a continuous stream without interruption for 30 seconds; run longer if necessary.

9) Repeat steps 5 through 8 for all remaining handpiece stations.

10) Depress **AIR** and **WATER** buttons on syringe(s) for 30 seconds.

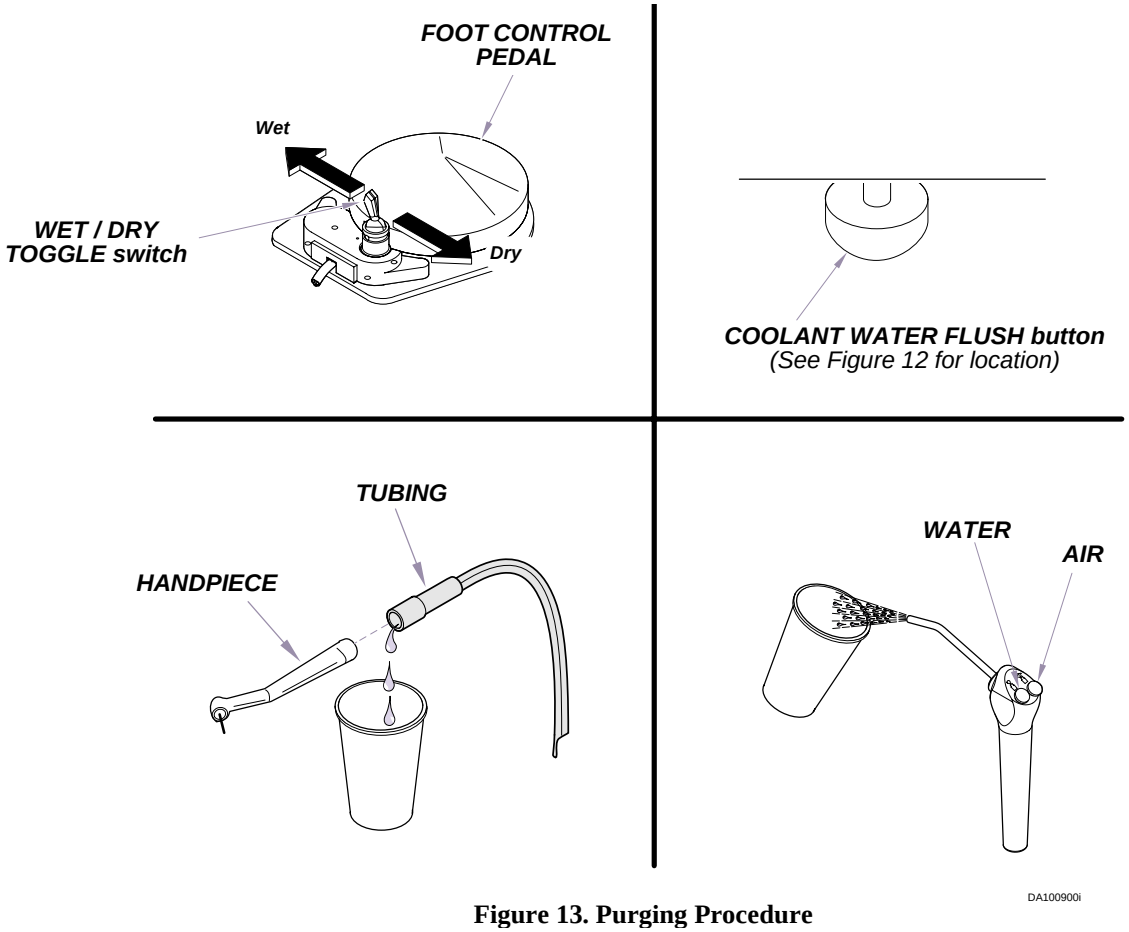


Figure 13. Purging Procedure

Replacement Parts

The following parts can be purchased from your dealer:

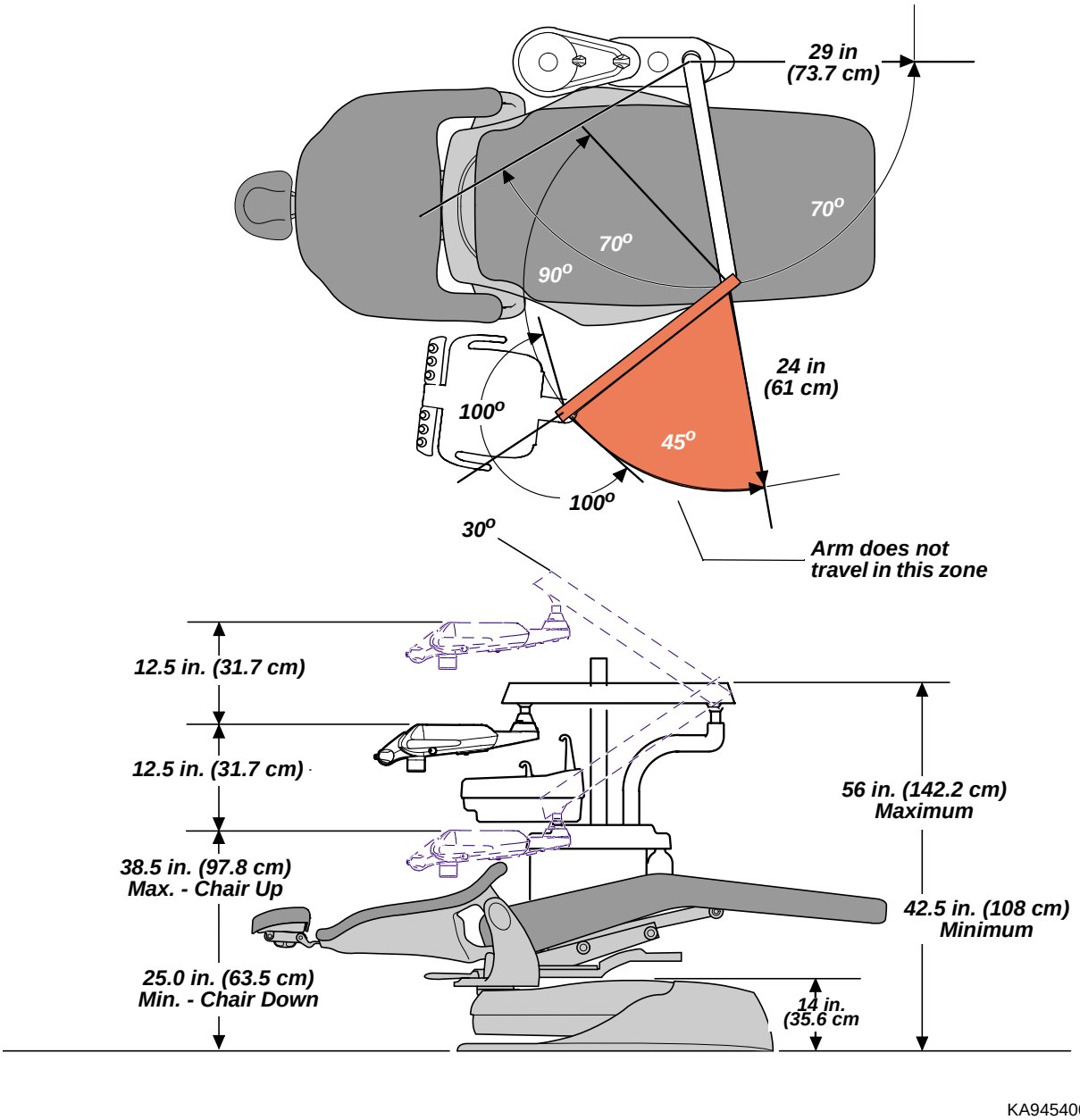
Gauze Sponge (For Air/Oil Separator)
Part Number: 121547

Syringe
Replacement Syringe Tip
Part Number: 120514

KA945700

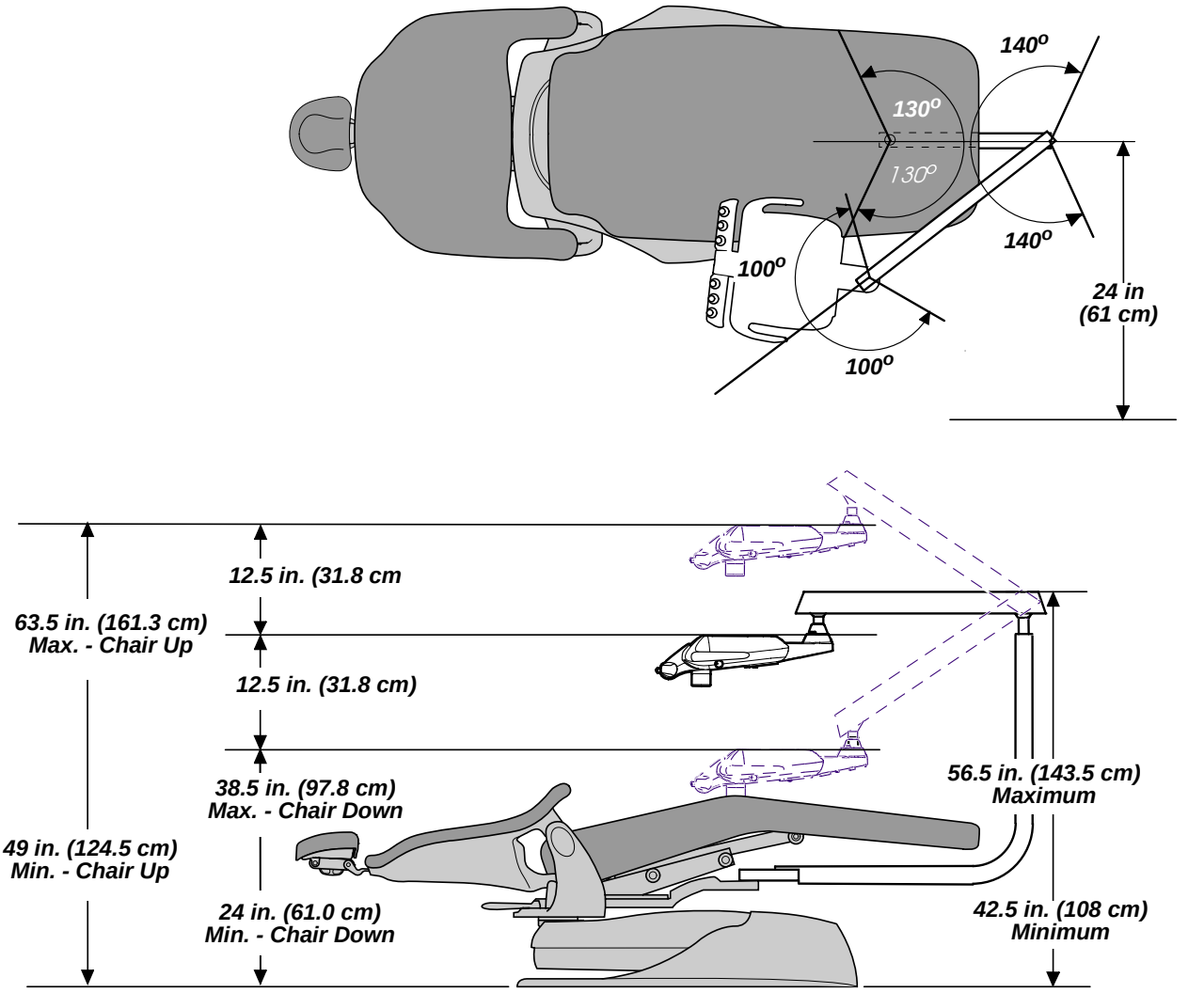
Specifications

Pressure Adjustment ..... 0 - 80 psi (5.6 k/c^2)
(for individual handpieces)
Classifications..... Class 1, Type B Applied Part,
Ordinary Equipment,
Intermittent Operation
Certifications..... UL-2601,
CAN/CSA-C22.2 No. 601.1



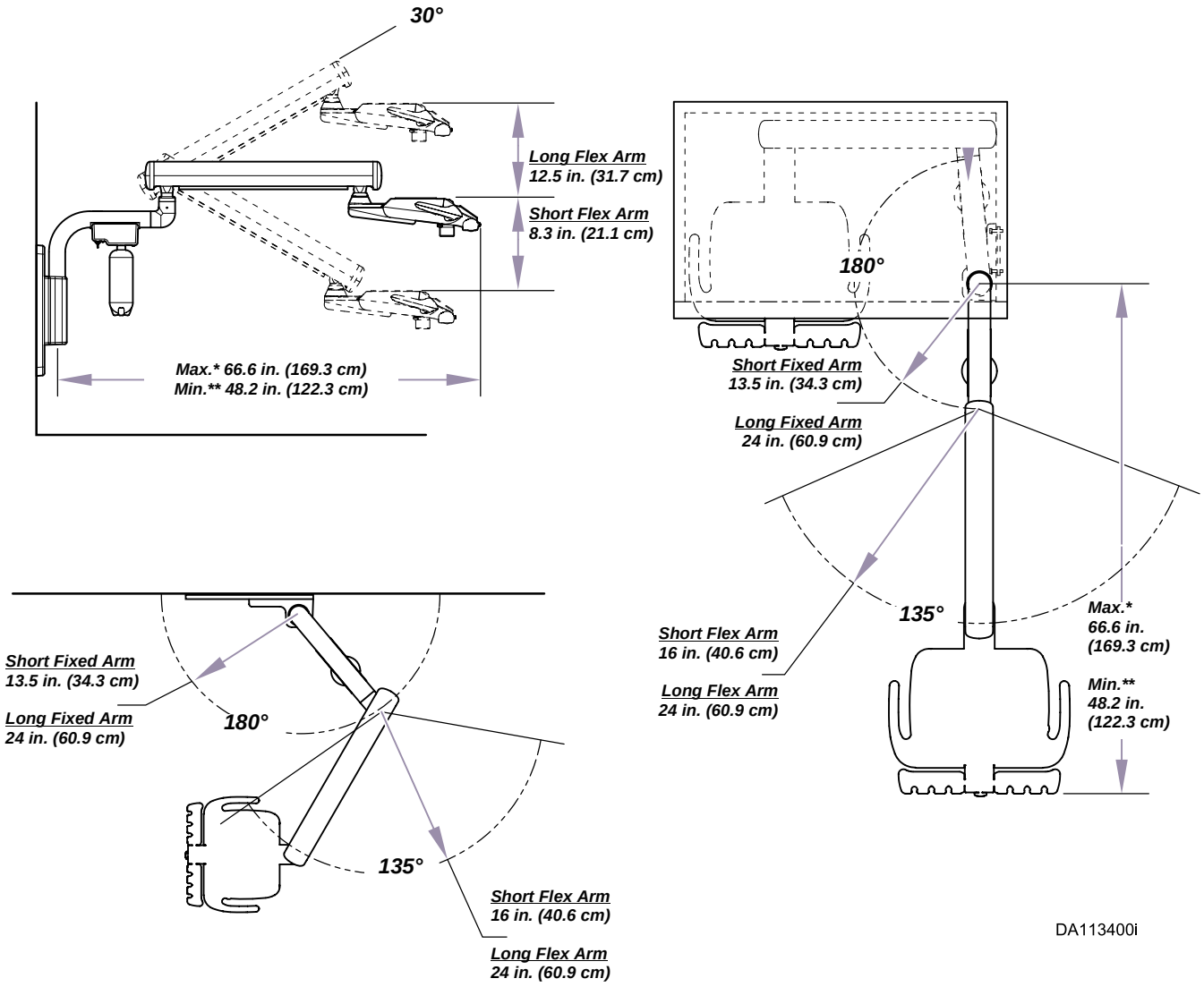
KA945400

Figure 14. Range of Motion - Console Mounted Operatories *(ProCenter & Whip units)*



KA962001i

Figure 13. Range of Motion - L/R Mounted Operatories *(ProCenter & Whip units)*



** Measurement w/long fixed arm & long flex arm (Standard w/wall mtd. unit)*
*** Measurement w/ short fixed arm & short flex arm (Standard w/cabinet mtd. unit)*

NOTE: Product can be configured to use either fixed arm w/ either flex arm

Figure 14. Range of Motion - Side Mounted Delivery Units *(Wall / Cabinet Mounted)*

MIDMARK®

General Information

Electromagnetic Interference

Midmark dental operatory components are designed and built to minimize electromagnetic interference with other devices. However, if interference is noticed between another device and this operatory, remove interfering device from room or plug product into an isolated circuit.

Symbols & Notes

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. The DANGER symbol is limited to the most extreme situations.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

EQUIPMENT ALERT

Indicates an imminently or potentially hazardous situation which, if not avoided, will or may result in serious, moderate, or minor equipment damage.

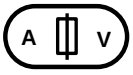
NOTE

Amplifies an operating procedure, practice, or condition.

Type B, Applied Part

Consult operator's manual for important information.

Dangerous voltage / shock hazard.

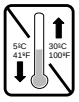


Fuse rating specification

Protective earth ground

Fragile

Proper shipping orientation



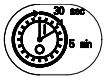
Minimum and maximum storage temperatures

Keep dry

Hot surface

ON

STANDBY



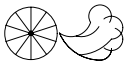
Duty cycle: (motor run time 30 sec. on, 5 min. off).

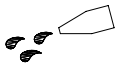
Cup Fill water flow adjustment.

Bowl Flush water flow adjustment

"City" water

Self-contained (distilled) water


Handpiece drive air adjustment

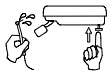

Handpiece/Syringe coolant water flow adjustment

Handpiece coolant air adjustment / Air Quick Disconnect

Water Quick Disconnect

Unlocked (Chair rotation)

Locked (Chair rotation)


Handpiece flush button
(***Note***: Remove handpiece from station; then remove handpiece from tubing connector).

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DECLARATION OF CONFORMITY

MIDMARK CORPORATION

Midmark Corporation declares that ProCenter Dental Units conform to the applicable requirements of the Medical Device Directive 93/42/EEC, Annex V and VII.

Serial Numbers: NV1000, PZ1000 and RF1000 to present.

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Quality Assurance Manager

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077-0309-00 Rev. D (4/02)

DECLARATION OF CONFORMITY

MIDMARK CORPORATION

Midmark Corporation declares that SW and S-21 Dental Units conforms to the applicable requirements of the Medical Device Directive 93/42/EEC, Annex V and VII.

Serial Numbers: UA1278, UW0132, UC0971, UK0148, and PN1000 to present.

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